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inpatient care and drug costs represented about 50% and 27% respectively of overall expenses. The increase by 24.4% polytherapy patients mean costs as compared to monotherapy raised to 72% [IC 95: 44-106%] after adjustment on age, gender and presence of severe comorbidity. **CONCLUSIONS:** Polytherapy in epilepsy is associated with substantial higher direct costs.

PND26

ESTIMATED COSTS OF FIRST-YEAR MONITORING AND ADMINISTRATION OF MULTIPLE SCLEROSIS THERAPIES IN THE UNITED STATES

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OBJECTIVES: To develop a tool to estimate the first-year per member and total health plan costs associated with monitoring of MS therapies in the United States. **METHODS:** Data were incorporated into an interactive tool designed to allow a health plan to estimate their costs for monitoring. MS prevalence was based on the literature. The default value for the proportion of MS patients treated with immunomodulators was assumed at 95% and adjusted IMS data were used for default market share inputs. Current Procedural Terminology (CPT) codes corresponding to the monitoring and administration procedures recommended by each product's prescribing information (PI) were identified. Charges associated with each CPT code were assigned using physician fee schedule software based on Medicare charges with default values set at 150%. PI recommendations were used for the proportion being monitored and the frequency of monitoring. In cases where a PI recommended only individuals with specific characteristics undergo monitoring, a database analysis identifying all individuals with a diagnosis of MS in the i3 InVision Data Mart (Ingenix, Eden Prairie, MN) was used to estimate the proportion of patients who may require that specific monitoring. **RESULTS:** The tool yielded average per patient and health plan costs expected with MS therapy monitoring. The tool conservatively estimates that the average per member first-year monitoring and administration costs ranged from $0 for glatiramer acetate to $3279 for natalizumab. Based on default values, the estimated annual costs of monitoring for all MS therapies for a million member health plan is $519,451. **CONCLUSIONS:** Estimating the economic impact of FDA-recommended MS therapy monitoring allows health plans to more closely assess the total cost of MS. This tool allows health plans to individualize inputs to estimate the plan-specific economic impact of MS therapy monitoring.

PND27

ECONOMIC ANALYSIS OF COST PER EPISODE OF CARE FOR ARM SPASTICITY AND CERVICAL DYSTONIA: COMPARISON OF TWO BOTULINUM TOXIN A PREPARATIONS IN 20 COUNTRIES

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OBJECTIVES: Botulinum toxin A (BTA) injections are indicated for the management of neurological movement disorders, including arm spasticity (AS) and cervical dystonia (CD). This study calculated the cost per care episode for two BTA: Botox® and Dysport®. The analysis was completed for 20 countries around the world. **METHODS:** Doses of BTA are expressed in non-interchangeable units: Botox® is available in "Allergan units" whereas Dysport® is provided in 500 "Speywood units". Recommended dosages were derived from country SmPCs/PIs. Cost analysis was based on official list prices and expressed in 2011 euros, using exchange rates as of end of May 2011. The cost per care episode was calculated using available recommended dosages for each product (country's own or average of other countries) combined with price per vial in each country. **RESULTS:** For AS, recommended total injection dosage per patient for Dysport is 1000 units in all countries where indicated in SmPCs; for Botox®, it is 300U per patient based on recommended dosages in the USA and France. For CD, dosages for Dysport® are 500U per patient; whereas 200U of Botox® is recommended per patient. Considered with the respective prices per vial in each country, Dysport® cost per patient per care episode for AS was less than Botox® in 17 (89%) of the 19 countries (average 15% less across countries). The difference was 20% or higher in nearly half (47%) of countries. In CD, these differences were even greater with Dysport® cost per patient was 40% or less versus Botox in 45% of countries (average 36% less across countries). **CONCLUSIONS:** Considering cost per patient per care episode based on recommended dosages in SmPCs/PIs, Dysport® remains cheaper versus Botox in most countries. When extrapolated to a national level, substantial savings could be realized by using Dysport® in the treatment of AS and CD.

PND28

COST-EFFECTIVENESS ANALYSIS OF INTERFERONS AND GLATIRAMER ACETATE AS FIRST LINE TREATMENTS IN REMITTING-RELAPSING MULTIPLE SCLEROSIS SPANISH PATIENTS

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OBJECTIVES: The aim of this study was to calculate the incremental cost-effectiveness ratio of the different Disease Modifying Drugs (DMD) used as first-line treatments (interferons IM IFNβ-1a, SC IFNβ-1a, SC IFNβ-1b and glatiramer acetate, GA) in Remitting-Relapsing Multiple Sclerosis (RRMS) in Spain. **METHODS:** A Markov model was developed to simulate the progression of a cohort of patients with RRMS, during a period of 10 years. Seven health states, defined by the EDSS, were considered in the model. Patients with an EDSS score of less than 6.0 were assumed to be treated with one of DMD. In addition, all patients were assumed to receive symptomatic treatment. The monthly transition probabilities of the model were obtained from the literature. The analysis was performed from the societal perspective, in which both direct and indirect (losses in productivity) healthcare costs (€, 2010) were included. A discount rate of 3% was applied to both costs and results. **RESULTS:** GA was the less costly strategy (€322,510), followed by IM IFNβ-1a (€ 329.595), SC IFNβ-1b (€ 333.925) and SC IFNβ-1a (€ 348.208). IM IFNβ-1a has shown the best efficacy results with 4,176 quality-adjusted life year (QALY), followed by SC IFNβ-1a (4,158 QALY), SC IFNβ-1b (4,157 QALY) and GA (4,117 QALY). Incremental costs per QALY gained with IM IFNβ-1a were €-1,005,194/QALY, €-223,397/QALY, and €117,914/QALY in comparison to SC IFNβ-1a, SC IFNβ-1b and GA, respectively. **CONCLUSIONS:** First-line treatment with GA is the less costly strategy for the treatment of patients with RRMS. Treatment with IM IFNβ-1a is a dominant strategy (lower cost and higher QALY) compared with SC IFNβ-1a and SC IFNβ-1b. However, IM IFNβ-1a is not a cost-effective strategy versus GA, because incremental cost per QALY gained with IM IFNβ-1a exceeds the €30,000 per QALY threshold, commonly used in Spain.

PND29

COMPARING THE COST-EFFECTIVENESS OF AVONEX AND BETAFERON IN THE MANAGEMENT OF MULTIPLE SCLEROSIS IN IRAN

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OBJECTIVES: Multiple sclerosis (MS) is the neurologic disability that can dramatically affect the quality of life (QoL) of patients and their families. Family life, economic status, and social interaction may be affected by somatic symptoms of the disease. Approximately 70,000 people in the Islamic Republic of Iran are affected by MS. Under budgetary constraints,Cost-effectiveness and cost-utility analyses (CEA/CUAs) are useful tools to assess the tradeoff between the added costs and potential benefits (e.g., improved patient outcomes) of new therapies. **METHODS:** The primary objective of this analysis was to evaluate the cost-effectiveness of Avonex compared with Betaferon from the Iranian Ministry of Health(MoH) over a 2-year time horizon. The relative risk reduction (RRR) method was used to compare reduction in relapse rates and disease progression data from pivotal randomized double-blind placebo-controlled clinical trials of the DMDs. The evaluation was conducted from the perspective of a Iranian health care sector (direct medical costs and indirect cost considered). The primary economic endpoint was cost per relapse avoided . Costs and outcomes occurring in the second year were discounted 3% to bring to 2010 present values. One way sensitivity analyses were conducted on key input variables to assess their impact on cost per relapse avoided. **RESULTS:** The 2-year reductions in clinical relapses for treatment with Avonex,Betaferon were 0.69 and 0.60 relatively. In the base case analysis, Avonex had the most favorable costs per relapse avoided (2652778 Rials) rather than Betaferon. Sensitivity analyses showed that these results were robust to changes in key input parameters, such as the number of relapses and disease progression steps in untreated patients, the progression rates, the average cost of relapse. **CONCLUSIONS:** This evaluation suggests that IFN β-1a SC injection(Avonex) represent the most cost-effective DMDs for the treatment of RRMS, where cost-effectiveness is defined as cost per relapse avoided,rather than Bataferon.

PND30

COST-EFFECTIVENESS OF EARLY VS. NON-EARLY INTERVENTION IN ACUTE MIGRAINE WITH ALMOTRIPTAN IN SPAIN

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OBJECTIVES: Early intervention in the course of acute migraine attacks has been recently advocated as a way to further reduce the economic burden and suffering of patients due to this condition. The aim of this study was to investigate the cost-effectiveness of such a strategy using almotriptan in the Spanish setting. **METHODS:** An economic evaluation was conducted from the Spanish societal and public health system perspective based on patient-level data collected in the "Act when Mild" study. Incremental cost-effectiveness ratios (ICER) were determined in terms of attack duration, loss of productive time and quality-adjusted life days (QALDs). Monte Carlo simulation was used to derive cost-effectiveness acceptability curves. **RESULTS:** Early treatment led on average to shorter attack duration, less productive time lost, better quality of life, and was overall cost-saving from a societal point of view with a probability of 97%. In terms of publicly reimbursed drug costs only, though, non-early treatment was always slightly less expensive. From the public health system perspective the (bootstrap) mean ICER of early treatment amounted to €0.12 per migraine hour avoided, €0.42 per hour of productive time lost avoided, and €6.62 per QALD gained. Considering willingness to pay values of €1 to reduce attack duration by one hour, €5 to avoid the loss of one productive hour, or €55 to gain one QALD (equivalent to €20,000 per QALY), the probability that early treatment was cost-effective from the public health system perspective was, respectively, 96%, 96%, and 98%. These results remained robust in sensitivity analyses that accounted for the uncertainty surrounding the major elements of the economic evaluation. **CONCLUSIONS:** Compared to non-early treatment, early treatment of acute migraine attacks with almotriptan when pain is still mild is with high probability cost-saving from the Spanish societal perspective and cost-effective from the public health system point of view.

PND31

A MODELLED ECONOMIC EVALUATION OF FIRAZYR® (ICATIBANT) FOR SYMPTOMATIC TREATMENT OF ACUTE ATTACKS OF HEREDITARY ANGIOEDEMA (HAE) IN ADULTS WITH C1-ESTERASE-INHIBITOR (C1-INH) DEFICIENCY

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OBJECTIVES: To estimate the cost-effectiveness of subcutaneously self-administered icatibant for the symptomatic treatment of acute attacks of HAE in adults with C1-INH deficiency.versus current clinical practice in Australia i.e., best supportive care, with delayed use of intravenous C1-INH concentrate if required administered in the hospital emergency setting. **METHODS:** An economic model with Markov processes was developed to estimate the costs and benefits of self-administered icatibant compared to current clinical practice in Australia. The model consisted of four health states (free of HAE attack, cutaneous HAE attack, abdominal HAE attack, laryngeal HAE attack) with patients starting in the attack-free health state and transitioning to one of the four health states at weekly cycles over 52 weeks. Variables in the model (probability of attack, probability an attack is treated, duration of attack) were based on evidence from relevant clinical trials and the wider literature. Utility values were derived from a survey of 201 members of the Australian general public using a vignette/health state scenario based approach and standard gamble methodology. Costs were estimated from the perspective of the Australian public health care system. **RESULTS:** Incremental cost per QALY of self-administered icatibant compared with current clinical practice in Australia estimated by the model was $71,026. Incremental costs consisted of an additional $8,864 in icatibant costs relative to C1-INH concentrate costs and a saving of $105 in the costs of attendances to accident and emergency department. The majority of the QALY gains were due to the better quality of life whilst in the attack-free health state, attributed to the "process utility" afforded by having access to self-administration and living in the knowledge that when an attack occurs it can be quickly and easily managed. **CONCLUSIONS:** This represents a reasonable level of cost-effectiveness of icatibant in the context of a small patient population and orphan indication.

PND32

COST-UTILITY ANALYSIS OF ROPINIROLE IN PARKINSON'S DISEASE (PD) TREATMENT

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OBJECTIVES: To compare cost-effectiveness of controlled release ropinirole (ROP CR) with levodopa (LD) and piribedil (PIR) in treatment of Parkinson's disease in Poland. **METHODS:** Lifetime Markov model from Polish public payer perspective was developed. Two schemes: drug monotherapy (ROP CR vs LD and PIR) and therapy added to levodopa (ROP CR vs LD) were considered. Effectiveness data were taken from the systematic review of randomized clinical trials. Utility was modeled based on the UPDRS values and dyskinesia occurrence. In the model Polish costs of drugs, qualification, monitoring, hospitalization and dyskinesia treatment were included. sensitivity analysis were performed for key model's parameters. **RESULTS:** Estimated lifetime QALYs per patient for comparison of monotherapies were: 8.12 for ropinirole CR, 7.95 for levodopa and 7.89 for piribedil. Differences in QALYs were statistically significant in favor of ropinirole CR for both comparators. Average costs per patient were 76,710 PLN for ropinirole CR, 61,180 PLN for levodopa and 62,860 PLN for piribedil. The ICERs for ropinirole CR were: 94,200 PLN in comparison to levodopa and 59,780 PLN in comparison to piribedil. Estimated lifetime QALYs per patient for comparison of ropinirol CR as add-on to levodopa with levodopa monotherapy in higher doses were: 7.70 for ropinirole CR and 7.16 for levodopa. Differences in QALYs were statistically significant in favor of ropinirole CR. Average costs per patient were 64,110 PLN for ropinirole CR and 18,420 PLN for levodopa. The ICERs for comparison of ropinirol CR with levodopa was 84,920 PLN. **CONCLUSIONS:** Ropinirole is cost-effective in comparison to piribedil and levodopa in monotherapy, and as add-on to levodopa in comparison to levodopa monotherapy in higher doses (threshold of three GDP: 102,045 PLN).

PND33

COST MINIMIZATION ANALYSIS OF FINGOLIMOD COMPARED TO NATALIZUMAB IN PATIENTS WITH RELAPSE REMITTING MULTIPLE SCLEROSIS IN THE NETHERLANDS

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OBJECTIVES: To assess the costs of oral treatment with fingolimod (Gilenya®) compared to intravenous infusion of natalizumab (Tysabri®) in patients with relapse remitting multiple sclerosis (RRMS) in the The Netherlands. **METHODS:** A cost-minimization analysis (CMA) was used to compare the costs of both treatments. In this analysis drug acquisition costs, drug administration costs, and other costs related to drug treatment were distinguished. Costs were discounted at 4%, and incremental model results were presented over a 1, 2, and 10 year time horizon. The robustness of the model results was determined by means of a number of deterministic univariate sensitivity analyses and a probabilistic sensitivity analysis. Additionally, a break-even analysis was carried out to determine at what IV infusion costs a cost neutral outcome would be obtained. **RESULTS:** When fingolimod was compared to natalizumab, the model predicted discounted incremental costs of -€1,699 (95%CI: -€2,216;-€946), -€4,094 (95%CI: -€5,017;-€2,625), and -€20,218 (95%CI: -€24,192;-€13,977) over a 1, 2, and 10-year time horizon respectively. Results of the sensitivity analyses showed that these predictions were most sensitive to changes in the costs for IV administration of natalizumab. Changing these costs within a range of €217 and €297 per IV infusion, resulted in cost savings varying from €15,831 to €24,606 after 10 years. The additional break-even analysis showed that IV infusion costs needed to be as low as €127 and €73 in order to obtain a cost neutral result after 1 and 10 years respectively. **CONCLUSIONS:** The present analysis showed that treatment with fingolimod resulted in considerable cost savings compared to natalizumab: €20,218 per RRMS patient in the The Netherlands after 10 years of treatment. The robustness of this estimate was confirmed within the sensitivity analyses. The conclusions were in line with cost-utility analysis that has been performed as well, showing cost savings of fingolimod compared to natalizumab.

PND34

COST-UTILITY ANALYSIS OF LACOSAMIDE ADJUNCTIVE THERAPY IN THE TREATMENT OF PATIENTS WITH REFRACTORY IN THE SLOVAK REPUBLIC

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OBJECTIVES: To calculate and compare the incremental cost-utility ratios for standard antiepileptic drug (AED) therapy with and without adjunctive lacosamide in patients with uncontrolled partial-onset seizures in the Slovak Republic. **METHODS:** The model simulated the treatment pathway of a hypothetical cohort of 1000 patients over two years from the third party payer perspective in the Slovak Republic using 2011 pricing. A decision tree was split into four phases of six months each during which patients can become seizure free, experience a seizure reduction (responder defined as ≥50% reduction in seizures), or withdraw due to non-response. The standard therapy arm included five adjunctive therapies: carbamazepine, lamotrigine, levetiracetam, topiramate and valproate. The likelihood of being in a particular health state has been estimated from clinical trials data. The cost of outpatient visits, inpatient and emergency department visits were included. Costs and utility values attached to various health states were taken from the published literature. **RESULTS:** Lacosamide adjunctive therapy was associated with 6730 avoided seizures and a gain of 38 quality adjusted life-years (QALYs), compared with the standard therapy within the 2-year timeframe. Treatment with lacosamide was associated with a cost of €103 per seizure avoided, and €18,402 per QALY gained versus standard therapy over 2 years and falls within acceptable thresholds of cost-effectiveness in Slovakia. Results calculated for 6-, 12- and 18-month follow-up showed respective incremental cost-utility ratios of €20,904, €19,443 and €19,133 and cost per seizure avoided of €276, €127 and €111. Using a willingness-to-pay threshold of €26,500 per QALY, 83% of the simulations fell below this value after 2 years of treatment. **CONCLUSIONS:** Lacosamide was shown to be a cost-effective adjunctive treatment in patients with uncontrolled partial-onset epilepsy in the Slovak Republic.

PND35

BELGIAN COST-UTILITY ANALYSIS OF GILENYA® (FINGOLIMOD) IN THE MANAGEMENT OF ADULTS WITH ACTIVE RELAPSING REMITTING MULTIPLE SCLEROSIS

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OBJECTIVES: To assess the cost-utility of oral fingolimod (Gilenya) versus IV natalizumab (Tysabri) in active relapsing remitting multiple sclerosis (RRMS) from Belgian healthcare (RIZIV/INAMI + patient), governmental and societal perspectives. **METHODS:** A 40-year Markov model was developed containing 20 health states describing disability severity based upon the Expanded Disability Status Scale (EDSS): 10 RRMS EDSS states (0-9), 10 secondary progressive MS (SPMS) EDSS states (0-9) and a death state. Per annual cycle, RRMS patients can remain stable, progress to a higher RRMS EDSS state or convert to SPMS at a higher EDSS state. Patients have a fixed annual probability of relapse and death (national age-adjusted mortality). RRMS patients with EDSS score <6.5 are eligible for disease modifying therapies (DMTs). Patients with SPMS or EDSS score ≥ 6.5 receive best supportive care. Transition probabilities were based on the natural history of RRMS and the relative risk of confirmed disability progression and relapse per DMT. Efficacy of natalizumab (AFFIRM) and fingolimod (FREEDOMS) was based upon indirect comparison with adjustment for differences in baseline disease characteristics and demographics. Belgian costs and utilities obtained from literature were assigned to each EDSS level and to relapse. DMT monitoring and administration costs were based upon expert opinion. Costs (3%) and outcomes (1.5%) were discounted. Probabilistic sensitivity analyses covered variability in efficacy, costs and utilities. **RESULTS:** Base-case analyses revealed cost-effectiveness of fingolimod from the health care perspective and dominance from governmental and societal perspective. The probability of fingolimod being cost-effective (<35,000€/QALY) varied between 64% and 70%. Results were sensitive to the hazard ratio of disability progression due to wide and overlapping confidence intervals (indirect treatment comparison). Excluding uncertainty in this parameter resulted in probabilities of cost-effectiveness between 81% and 100%. **CONCLUSIONS:** Treatment of active RRMS with fingolimod was cost-effective from all payers' perspectives versus treatment with natalizumab.

PND36

FACTORS ASSOCIATED WITH UTILITY AND DISUTILITY VALUES IN RELAPSING FORM OF MULTIPLE SCLEROSIS (RMS) PATIENTS USING DATA FROM TEMSO, A TERIFLUNOMIDE PIVOTAL PHASE III TRIAL

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OBJECTIVES: Multiple sclerosis (MS) is a neurodegenerative disease associated with significant impairments in health related quality of life. This analysis was to identify patient factors associated with utility in RMS patients and to derive disutility values according to relevant disease stages. **METHODS:** TEMSO (N=1088)